

Please cancel claims 21-24 without prejudice or disclaimer of the subject matter thereof.

REMARKS

The Examiners, Messrs. Parker and Chung, are thanked for the courtesy extended applicants' attorney during the interview of February 11, 2003, at which time proposed amendments to the independent claims were discussed, which amendments represented an incorporation of features of dependent claims into the independent claims so as to clarify the differences between the claimed invention and the cited art.

By the present amendment, independent claims 1, 8, 13 and 18 have been amended in the manner as discussed at the interview and applicants submit that the independent claims and the dependent claims patentably distinguish over the cited art as will become clear from the following discussion.

Turning first to the amendment of the claims, applicants note that by the present amendment, claim 1 has been amended to incorporate the features of dependent claims 2, 3 and 21, for example therein, with claims 2, 3 and 21-24 being canceled without prejudice or disclaimer of the subject matter thereof, by the present amendment. With regard to claim 1, such recites a process for manufacturing a liquid crystal display device including a step of irradiating polarized UV light to an orientation film formed on a substrate while heating the substrate, as previously presented. Thus, claim 1 clearly recited the heating of the substrate at the same time or simultaneously with irradiation of polarized UV light to the orientation film formed on the substrate. Claim 1, as amended, by the present amendment, provides that "the heating is provided by a stage associated with the substrate which moves the substrate while the orientation film formed on the substrate is irradiated" which features have been previously set forth in dependent claims 2, 3 and 21, for

example. Thus, it is readily apparent that this amendment does not raise any new issues requiring further search and/or consideration. That is, claim 2 which was dependent upon claim 1 recited the feature of "the heating is provided by a stage associated with a substrate" and claim 3 which was dependent upon claim 2 recited the feature that "the heating is provided by the stage which moves the substrate", while dependent claim 21 clearly set forth that "the substrate is heated...during the irradiation of the polarized UV light to the orientation film formed on the substrate". Applicants therefore submit that the amendment of claim 1 is enterable as a matter of right in response to the final Office Action.

Applicants note that independent claims 8, 13 and 18 have been amended in a similar manner to that of claim 1 and applicants submit that the features of the independent and dependent claims patentably distinguish over the cited art, as will become clear from the following discussion.

The rejection of claims 1, 8, 13, 18 and 21-24 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698); the rejection of claims 2-3 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698); the rejection of claims 4, 9 and 14 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698) in further view of Nakabayashi et al (5,710,608); the rejection of claims 5, 10 and 15 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698); the rejection of claims 6, 11, 16 and 19 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698); the rejection of claims 7, 12 and 17 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698); and the rejection of claim 20 under 35 U.S.C. 103(a) as being unpatentable over Chigrinov et al (5,389,698); such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

At the outset, as to the requirements to support a rejection under 35 U.S.C. 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the

reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Turning to claim 1, for example, the Examiner states:

Although Chigrinov et al does not specifically disclose heating the substrate during the process of irradiating the polymer layer, it was well known and obvious to do so in order to control the rate of polymerization. The temperature to which the substrate was heated and the duration for which this temperature was maintained are result effective variables. Result effective variables have been judicially determined to obvious to one of ordinary skill in the art. Determination of these variables for best results would have been obvious to one of ordinary skill in the art. Using an orientation film that is responsive to irradiation of polarized UV light was well known and obvious given the process disclosed by Chigrinov et al. (emphasis added)

Applicants submit that the Examiner's position, as stated, recognizes that Chigrinov et al does not disclose, and applicants submit does not teach, the claimed features of claim 1, for example, prior to amendment, and the position set forth by the Examiner is based upon the principle of "obvious to try" which is not the standard of 35 U.S.C. 103. See In re Fine, supra. Moreover, the Examiner's contentions as to what is "well known" and the utilization of such in Chigrinov et al has been rejected by the court. See In re Lee, supra. Accordingly, applicants submit that the Examiner's basis is improper and the rejection necessarily falls under 35 U.S.C. 103.

Turning to Chigrinov et al, the Examiner recognizes that Chigrinov et al does not disclose heating the substrate during the process of irradiating the polymer layer, which is a requirement of claim 1. More particularly, in each of examples 1-3 of such patent which describes drying or heating of the layer formed on a substrate, only after the drying and/or heating has been effected, is the layer irradiated with light. For example, Example 3 at col. 3, lines 1-13, provides that "the layer was then dried in air for about 20 minutes and then heated to about 80°-90° C. for about 20 seconds. After this pre-treatment, the layer was exposed for about 100 seconds to irradiation..." (emphasis added). Thus, applicants submit that all claims which recite the aforementioned features, i.e. claims 1, 8, 13 and 18, prior to amendment,

patentably distinguish over Chigrinov et al in the sense of 35 U.S.C. 103 and should be considered allowable thereover.

As noted above, each of the independent claims has been amended to define the feature that the heating is provided by a stage associated with the substrate which moves the substrate while the orientation film formed on the substrate is irradiated. Applicants submit that as pointed out above, such features have been recited in the dependent claims and are now recited in the independent claims and Chigrinov et al provides no disclosure or teaching thereof in the sense of 35 U.S.C. 103. More particularly, it is noted that the Examiner has indicated with regard to previous claims 2 and 3 which features are now incorporated into claim 1, "Chigrinov et al does not disclose using a moving stage to heat the substrate. However, use of a moving stage to heat the substrate was conventional at the time of invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a moving stage with the method of Chigrinov et al because it was conventional." Hereagain, applicants submit that this position by the Examiner has been rejected by the court in the decision of In re Lee, supra, such that claim 1, as amended, and each of the other independent claims which recite such features patentably distinguish over Chigrinov et al in the sense of 35 U.S.C. 103 and should be considered allowable thereover.

Applicants note that in accordance with the present invention, the stage moves the substrate and heats the substrate simultaneously with the irradiation of the layer on the substrate. In Chigrinov et al, assuming arguendo that the pre-heated substrate is then exposed to light wherein the substrate is moved in relation to the exposure light to expose the film over the entire substrate, during this movement, a cooling of the substrate is effected, such that different portions of the film on the substrate are subjected to light irradiation while being at different temperatures. In the present invention, the heating of the substrate is effected

during the movement of the substrate relative to the exposure light and in this manner, the temperature at the time when light exposes the different areas of the substrate is maintained the same, such that a difference of level of structural change or reaction from area to area in the substrate as would be obtained with Chigrinov et al is avoided and therefore difference of contrast ratio from area to area is prevented. As described at page 27, line 24 to page 28, line 2 of the specification of this application, such operation enables the time for irradiation to be reduced. As pointed out above, Chigrinov et al does not disclose irradiating of the orientation film on the substrate while heating the substrate and does not disclose or teach the moving of the substrate and heating while moving the substrate and irradiating the film thereon, as now recited in each of the independent claims of this application. Thus, applicants submit that all claims present in this application patentably distinguish over Chigrinov et al in the sense of 35 U.S.C. 103, and should be considered allowable thereover.

Applicants note that as to the other independent claims 8, 13 and 18, such claims, as amended, recite essentially the same features as now provided in claim 1 and such claims together with the dependent claims patentably distinguish over Chigrinov et al in the sense of 35 U.S.C. 103, and should be considered allowable thereover.

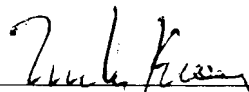
As to the dependent claims, applicants note that the dependent claims recite further features and irrespective of the Examiner's contentions concerning such features being well known and therefore obvious to utilize in Chigrinov et al, applicants submit that this position by the Examiner is improper in light of In re Lee, supra. Moreover, with respect to the additional cited art of Nakabayashi et al with respect to claims 4, 9 and 14, applicants submit that Nakabayashi et al does not overcome the deficiencies of Chigrinov et al as pointed above, such that irrespective of the disclosure of Nakabayashi et al, the proposed combination fails to disclose or

teach the recited features of the parent claims as well as dependent claims 4, 9 and 14. Accordingly, applicants submit that all claims present in this application patentably distinguish over the cited art and should be considered allowable at this time.

In view of the above amendments and remarks, applicants request favorable action in this application.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (501.36702CX2) and please credit any excess fees to such deposit account.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Melvin Kraus', is written over a horizontal line.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claim 1 as follows:

1. (amended) A process for manufacturing a liquid crystal display device including a step of irradiating polarized UV light to an orientation film formed on a substrate while heating the substrate, wherein the heating is provided by a stage associated with the substrate which moves the substrate while the orientation film formed on the substrate is irradiated.

Please cancel claims 2 and 3 without prejudice or disclaimer of the subject matter thereof.

Please amend claims 8, 13 and 18 as follows:

8. (amended) A process for manufacturing a liquid crystal display device including a step of irradiating polarized UV light to an orientation film formed on a substrate while maintaining a temperature of the substrate higher than room temperature, wherein the temperature of the substrate is maintained by a stage associated with the substrate which heats and moves the substrate while the orientation film formed on the substrate is irradiated.

13. (amended) A process for manufacturing a liquid crystal display device including a step of irradiating polarized UV light to an orientation film formed on a substrate for a time period while maintaining a temperature of the substrate which is higher than room temperature, the time period being less than a time period when the substrate is not maintained at the higher temperature, wherein the temperature of the substrate is maintained by a stage associated with the substrate which heats

and moves the substrate while the orientation film formed on the substrate is irradiated.

18. (amended) A liquid crystal display device including orientation film formed on a substrate, wherein the orientation film is ~~responsive to irradiation~~ irradiated by polarized UV light while heating of the substrate for orientation of the orientation film, wherein the heating is provided by a stage associated with the substrate which moves the substrate while the orientation film formed on the substrate is irradiated.

Please cancel claims 21-24 without prejudice or disclaimer of the subject matter thereof.